

Patent Claims

1. A plug-connectable vacuum cleaner pipe arrangement
2 (10) with a sleeve part (12) which forms a socket (15) into which a
3 pipe insertion end (13) can be axially inserted in an insertion
4 direction (e) and which can be held in a snap-locked condition
5 releasably via locking means (S, T) which on the side of the sleeve
6 part (12) is comprised of a locking body (S) movable on the latter
7 and on the side of the pipe insertion end (13) is formed by a
8 detent recess (T) provided in the latter and in which the detent
9 body (S) releasably engages, characterized in that, on the sleeve
10 part (12) an actuating slider (17) is axially guided which has a
11 locking surface (26) and is displaceable in two axially opposite
12 axial directions (e, a) starting from a neutral axial position of
13 its locking surface (26) against respective spring-restoring
14 forces, in that the locking surface (26) hold the locking body (S)
15 in its locked position in the neutral axial position of the locking
16 surface (26) and by each shift out of the neutral axial position
17 into an unlocking position is displaced into an unlocking position,
18 in that the end (42) of the tube insertion end (13) has a first
19 control surface (41) which upon insertion arrow ($\rightarrow e$) of the tube
20 insertion end (13) into the socket (15) moves the locking body (S)
21 together the sleeve part (12) relative to the locking surface (26)
22 in the pipe insertion direction (e), thereby unlocking the locking
23 body (S) and freeing it for its releasable snap locking into the

24 detent recess (T) which is juxtaposed with a second control surface
25 (43) which, upon withdrawal (→a) of the tube insertion end (13)
26 from the socket (15) moves the locking body (S) together with the
27 sleeve part (12) relative to the locking surface (26) in the
28 withdrawal direction (8) and thereby disengages.

1 2. The plug-connectable vacuum cleaner pipe arrangement
2 according to claim 1, characterized in that, the actuating slider
3 (17) has a locking projection (25) formed with the locking surface
4 (26) and projecting radially to the outer surface (24) of the
5 sleeve part (12).

1 3. The plug-connectable vacuum cleaner pipe arrangement
2 according to claim 2, characterized in that, the locking projection
3 (25) radially tapers toward the sleeve part (12) and has a
4 frustopyramidal cross section whereby the roof surfaces of the
5 locking projection (25) forms the locking surface (26) and the
6 latter is inclined thereto in both opposite axial directions (e, a)
7 side flanks forming slide guide surfaces (27, 28) for the locking
8 body (S).

1 4. The plug connectable vacuum cleaner pipe arrangement
2 according to one of claims 1 to 3 characterized in that, in the
3 actuating slider (17) has a radially inwardly projecting
4 substantially claw-like formation (21) extending toward the sleeve
5 part (12) whose claw opening receives a rod spring (18) held on the

6 sleeve part (12) at a spring region (23) deflectable in both
7 opposite axial directions (e, a)

1 5. The plug connectable vacuum cleaner pipe arrangement
2 according to one of claims 1 to 4, characterized in that, the
3 actuating slider forms a component (17) at least partly surrounding
4 the sleeve part (12) as a collar.

1 6. The plug connectable vacuum cleaner pipe according
2 to claim 5, characterized in that, the actuating slider forms an
3 actuating sleeve (17) which surrounds the sleeve part (12) over its
4 entire periphery.

1 7. The plug connectable vacuum cleaner pipe according
2 to one of claims 1 to 6, characterized in that, sleeve part (12)
3 and pipe insertion end (13) in the region of the socket (15) have
4 axial guide means (36, 37).

1 8. The plug connectable vacuum cleaner pipe according to
2 claim 7, characterized in that, the axial guide means are formed
3 from a groove and spline agent (36, 37).

1 9. The plug connectable vacuum cleaner pipe according to
2 claim 7 or according to claim 8, characterized in that, the pipe
3 insertion end (13) has a radially outwardly projecting
4 axial guide rib (37) and the sleeve part (12) has on its inner

5 shell surface (35) an axial guide groove (36) corresponding to the
6 axial guide rib (17).

1 10. The plug connectable vacuum cleaner pipe according to
2 one of claims 1 to 9, characterized in that, actuating slider (17)
3 and sleeve part (12) form axial guide means with one another.

1 11. The plug connectable vacuum cleaner pipe according
2 to claim 10, characterized in that, the axial guide means are
3 formed from a groove and spline agent (36, 37).

1 12. The plug connectable vacuum cleaner pipe according
2 to one of claims 1 to 11, characterized in that, the end (42) of
3 the pipe insertion end (13) to form the first control surface (41)
4 is conically inwardly convergent over at least part of its
5 periphery.

1 13. The plug connectable vacuum cleaner pipe according
2 to one of claims 1 to 12, characterized in that, the detente recess
3 (T) of the pipe insertion end (13) is formed at a radially inwardly
4 projecting cup-shaped recess circuited toward the pipe center.

1 14. The plug connectable vacuum cleaner pipe according
2 to claim 13, characterized in that, the cup shaped recess (T) has a
3 generally frustoconically shaped cross sectional contour.

1 15. The plug connectable vacuum cleaner pipe according
2 to one of claims 1 to 14, characterized in that, the end (42) of
3 the pipe insertion end which is proximal to the side surface (43)
4 of the cup-shaped detente recess (T) forms the second control
5 surface.

1 16. The plug connectable vacuum cleaner pipe according
2 to one of claims 1 to 15, characterized in that, the cross
3 sectional contour of the detente body (S) corresponds to the cross
4 sectional contour of the cup-shaped detente recess (T).

1 17. The plug connectable vacuum cleaner pipe according
2 to claim 16, characterized in that, the detente body (S) forms a
3 locking counter surface (34) juxtaposed with the locking surface
4 (26) of the actuating slider (17).

1 18. The plug connectable vacuum cleaner pipe according
2 to one of claims 1 to 17, characterized in that, the detent body
3 (S) forms slide guide counter surfaces (29, 30) corresponding to
4 the inclined slide guide surfaces (27, 28) of the locking
5 projection (25) of the actuating slider (17) inclined in the two
6 mutually opposite axial directions (e, a).

1 19. The plug connectable vacuum cleaner pipe according
2 to one of claims 1 to 18, characterized in that, the detent body

3 (S) is guided substantially radially movable on the sleeve part
4 (12) and is coupled for movement with the latter at least with
5 respect to the two mutually opposite axial directions (e, a).

1 20. The plug connectable vacuum cleaner pipe according
2 to one of claims 1 to 19, characterized in that, the detent body
3 (S) forms a tongue like component (Z) cut out of the sleeve part
4 (12) and whose tongue root (33) is adjacent the end (32) of the
5 sleeve part (12)